

**UZBEKISTAN`S INNOVATION POTENTIAL – TRANSITION FROM POST-SOVIET ECONOMY TO INNOVATION HUB OF CENTRAL ASIA**

*Umidjon Khoshimov*

**Keywords:** Innovation, Innovative Economy, Uzbekistan, Economic Growth

**Abstract**

Emerging economies in the post-soviet area consider economic growth focused on innovation as an essential condition of ensuring sustainable growth in the 21st century. For this reason, governments of developing countries have adopted several state programs navigated to the stimulation of innovation in all sectors of economy. Likewise, the government of Uzbekistan has also chosen innovative development as country`s future economic and social wellbeing.

Thereby, important steps were made by the government of Uzbekistan through establishing the Ministry of Innovative Development, adopting Innovation Strategy and thus facilitating innovation ecosystem in the country. However, before switching to current innovation potential, historical aspects, especially transition period that Uzbekistan underwent as a post-soviet economy must also be discussed.

Thus, this paper analyzes Uzbekistan`s transformation period after collapse of Soviet Union and its current innovation potential, bringing the examples of national innovation policies, technology-driven accelerators, funding opportunities. Policies promoting youth involvement in innovative entrepreneurship has also been explored through the paper. After discussing divergent views and opportunities, policy recommendations are provided in the final part.

**1. Introduction**

The land that is known now as Uzbekistan was once the heart of the Great Silk Road – a trade route and a platform connecting China with the Middle East and Europe. The country with rich historical and cultural heritage spent most of past 100 years as part of the Soviet Union, before emerging as an independent state in 1991.

In order to shed some lights about the country profile, few facts might be useful. Uzbekistan is a country in Central Asia, which is surrounded by five neighboring countries: Kazakhstan, Turkmenistan, Kyrgyzstan, Tajikistan and Afghanistan. Alongside with Liechtenstein, Uzbekistan is one of only two double landlocked countries in the world. With the territory of 447,400 km<sup>2</sup>, its population comprise of 34 million people approximately. From the economic perspective, according to the World Bank reports, it acquired a Gross Domestic Product (GDP) of 50,5 billion US dollars (2018), while nominal GDP per capita accounted for 6.8 thousand US dollars in 2018. One-fifth of GDP provided by agriculture, Uzbekistan was one of the greatest producers of cotton in the world and a major source of natural gas, gold, oil and other mineral resources.

After collapse of Soviet Union, similar to other post-soviet countries, Uzbekistan also experienced the period of economic downturn. It gradually shifted the economy from Soviet style central planning to market principles. As other researchers and policymakers confirm, Uzbekistan`s transitional period was gradual and positive as compared to other countries of former Soviet Union. Despite some fluctuations, Uzbekistan has performed primarily positive economic growth (5-6 % of annual GDP growth rate) throughout the period, while nominal GDP more than tripled since its independence (13.6 bln. USD in 1991). Moreover, life expectancy rehabilitated substantially from 66 in 1991 to 71 presently. The same increasing trend were observed in terms of demography, from 21 million people in 1991 to 34 million in 2019. According to Trushin and Carneiro (2013), one of the most noticeable structural transformations in Uzbekistan over the past 20 years has been the gradual modification in the economic structure from agricultural orientation (mainly cotton) in the late 1990s towards a comprehensive navigation to industry and services by 2012.

It should be noted the President of Uzbekistan highlighted the importance of concentrating on innovation and technological growth in order to boost the economic development and from recent years these areas have been identified as the main locomotives of economic and social wellbeing. As the initiative of the First President of the country, there is a good tradition to name each year with a specific name or mission, in accordance with already established economic, political and social development agenda of the country, thus, subsequently, develop a special state program and implement comprehensive measures for this specific year. In fact, the year 2018 was identified as “the Year of Proactive Entrepreneurship, Innovative Ideas and Technologies”, while 2020 was declared as the Year of Science, Education and Digital Economy”. These activities once again confirm the enthusiasm and passion of the Uzbek government in terms of promoting innovative and technological development.

One of the most popular analytical journals - The Economist nominated<sup>1</sup> Uzbekistan as “Country of the Year” in 2019, positively evaluating its actions in terms of fighting against corruption, old fashioned bureaucracy, ensuring human rights, promoting small businesses and entrepreneurship.

Considering those achievements, we may definitely state that Uzbekistan is becoming one of the emerging innovative leaders in the Central Asian region. Nevertheless, Uzbekistan`s innovation potential still remains as unknown, untouched and mysterious subject for many researchers and policymakers. The reason is that there is substantial amount of research conducted describing economic and political perspectives in the country over several period of time, however, no research has been conducted so far in terms of exploring the innovative, scientific and technological potential of Uzbekistan.

For this reason, considering huge interest of many researchers, policymakers, international organizations on the ongoing positive changes in the country, we decided

---

<sup>1</sup> <https://www.economist.com/leaders/2019/12/21/which-nation-improved-the-most-in-2019>

to analyze current innovation potential of Uzbekistan and its transition period after collapse of Soviet Union.

Therefore, this paper is structured as follows: after introducing background information about Uzbekistan and the research problem, review of relevant literature is provided. Following this, Uzbekistan's research, innovation and technological transformation period is deeply analyzed, switching to the current innovation, research and technological potential of the country. Subsequently, we will summarize our analysis with a brief conclusion and policy recommendations to further develop its potential.

The research paper is based on descriptive research analysis and mainly uses qualitative data obtained using the methodology of in-depth-interviews, context and text analysis, case studies. The time series data was mainly utilized in this project spanning 25-28 years (1991-2019) for Uzbekistan. Indicators are obtained from the databases of three organizations such as the World Bank and International Monetary Fund, World Intellectual and Property Organization. Additional sources such as official website of the Ministry of Innovative Development of Uzbekistan, UNESCO, and several publications are also utilized in order to improve the value of the research.

## **2. Literature review**

Recent years have witnessed considerable emergence of controversial ideas between researchers and policymakers about the transition period that Uzbekistan encountered after collapse of the Soviet Union. Some researchers highlight Uzbekistan's robust transformation with a gradual economic growth, while others strongly criticize its way of economic transformation.

As Spechler 2000 claims, Uzbekistan after collapse of Soviet Union adopted unusual "Uzbek Model" of economic development rejecting the shock therapy model proposed by Washington consensus, International Monetary Fund, World Bank. The idea of Uzbek model of economic development was gradual transition from soviet planned economy into market-oriented economic principles.

Initially, this economic strategy proved itself very effective. According to Tsereteli (2018), Uzbekistan was considered to be the best-performing of all post-soviet countries in the 1990s and by the end of the decade Uzbekistan was the first post-soviet economy which was able to return its pre-1991 real GDP. In the 1990s, Uzbek economy profited from an abundance of cotton, which was offered at competitive price at that time and it was relatively easy to reach world markets. Confirming these ideas, Popov (2013) states that a substantial share of the cotton revenue went to the government balance, which enabled the state to maintain social supports better than any other Central Asian country. Remarkably, as Spechler (2000) emphasizes other international experts were drawing instant attention to the economic success story of Uzbekistan in the 1990s, calling it a candidate for becoming a Central Asian tiger.

However, Stark and Ahrens (2012) argue that the major misstep of Uzbek government was the slow reaction to falling cotton prices. With the gradual decrease of cotton prices in the world market since 1996, the Uzbek government was required to alter its economic strategy towards industrial and technological modernization. Instead, the government introduced strict exchange rate controls in October 1996, these decisions with a lack of confidence in price mechanisms resulted in huge disparity in the long run between domestic and foreign currencies.

Moreover, Ruziev et al. (2007) brings additional arguments that the economic growth in the beginning of twenty first century was mainly driven by the commodity boom, while other sectors of the economy, especially manufacturing did not promote much growth, even though it was supported by import-substituting industrialization programs.

According to Stark and Ahrens (2012), Uzbekistan's boundaries were tightly controlled by border securities and custom offices, both for security reasons and to protect import-competing industries. These conditions created additional obstacles for businesses and industries to trade and import additional raw materials. This mix of domestic regulations on transit, customs regulations and charges, as well as lengthy border delays exacerbated Uzbekistan's economic isolation.

On the other hand, Popov (2013) advocates Uzbekistan's economic transition strategy arguing that over the last 20 years, Uzbekistan experienced visible structural transformation, gradually shifting from its reliance from main commodities such as cotton, gold towards industry and manufacturing. The author also acknowledges that Uzbekistan established a competitive export-oriented auto industry, becoming one of the selected countries in the world with automobile production industry. The car production was initially supported by the Korean government and then US General Motors became the partner of the Uzbek government.

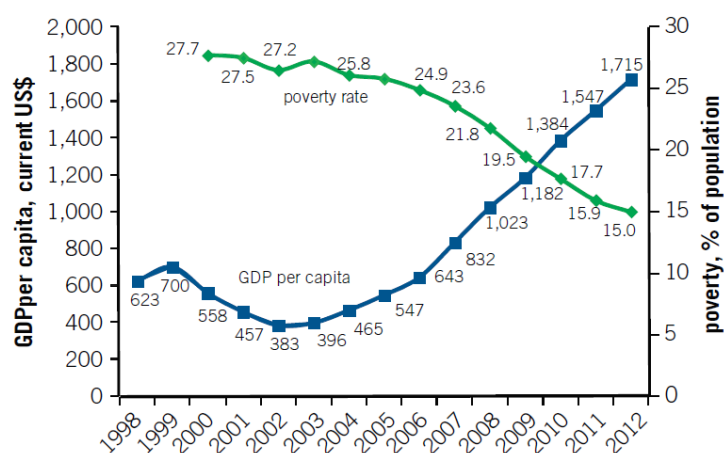
Trushin and Carneiro (2013) agrees with the aforementioned idea, stating that export and import structures have also changed dramatically within this transition period. The segment of non-commodity exports (such as automobiles, trucks, fertilizers, food products and plastics) increased from 10 percent of total exports in 1992 to 23 percent in 2012. Diversification in the structure of imported goods was also observed, gradually shifting from food and energy to raw materials and capital goods (machinery, equipment, chemicals).

In addition, recent reforms would signal that Uzbekistan is now more open to business world, negotiations for accession to the World Trade Organization (WTO) prove our statement. In fact, Uzbekistan had been the first Central Asian country which applied for WTO membership in 1994. Several initial requirements and procedures had been completed but these actions paused in 2005. However, from March 2018, the Uzbek government relaunched its commitments and hosted representatives of the World Bank, USAID, Asian Development Bank and other donor organizations, then discussed a detailed accession plan of Uzbekistan's entry into WTO, thus clearly demonstrating determination to join the international trade system.

### 3. Transition period

After collapse of Soviet Union, Uzbekistan, similar to other CIS countries, gradually shifted the economy from Soviet style central planning to market principles. Its transitional period was gradual and positive as compared to other countries of former Soviet Union. Despite some fluctuations, Uzbekistan has performed primarily positive economic growth (5-6 % of annual GDP<sup>2</sup> growth rate) throughout the period, while nominal GDP more than tripled since its independence (13.6 bln USD in 1991). Moreover, as we can see from the figure 1, GDP per capita has also almost tripled throughout the transition period, while poverty rate was reduced substantially from 30 percent approximately in 1998 to 15 percent in 2012.

**Figure 1: Poverty and GDP per capita of Uzbekistan through transition period**



Source: Trushin and Carneiro (2013, p. 2)

However, in this paper instead of describing transition in terms of economic profile, we are more concerned about R&D and technological transformation of Uzbekistan after post-soviet period. As mentioned earlier, it should be noted that due to lack of statistical data, there were some limitations for particular indicators in terms of describing this transformation fully.

One of the essential factors playing a crucial role in country's technological transformation is the number of businesses established annually. In this context, it is remarkable that since the first years of independence, business sector and small medium enterprises (SME) played an important role in the Uzbek economy. In fact, the first President of Uzbekistan – I.A.Karimov established entrepreneurship and business sphere as priority area of economic development.

According to Spechler (2000), in 1995 several policies were undertaken by the government of Uzbekistan in order to promote entrepreneurship and rural employment. As part of this program, two-year tax holidays, large program of loans and debt repayment delays for small businesses were introduced, which in fact shaped a positive

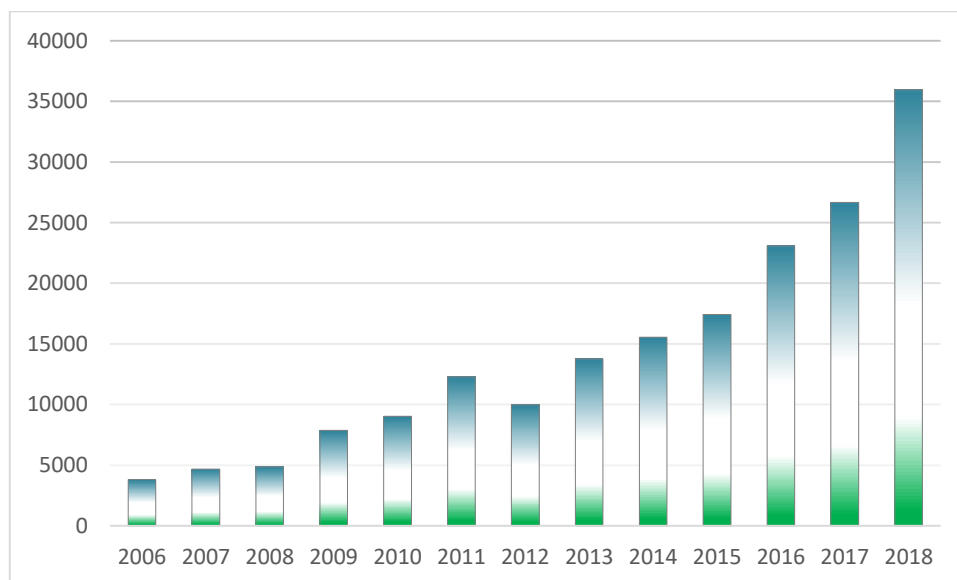
<sup>2</sup> Gross Domestic Product – one of the main macroeconomic indicators



environment for new business establishments. Thus, the share of SMEs on Uzbekistan`s GDP rose from 30 percent at the start of millennium to 50 percent by 2011 (Tsereteli, 2018).

Analyzing the figure 2, it is noticeable that within two years the number of registered new businesses increased almost twofold since 2016. This is mainly associated with President Mirziyoyev`s structural reforms focused on strengthening the private sector and facilitating job creation. Moreover, a pivotal aspect on government`s reform agenda was introducing the Presidential Decree - “Additional Measures to Ensure Accelerated Development of Entrepreneurial Activities, Qualitative Improvement of the Business Environment and Full Protection of Private Property”<sup>3</sup> on October of 2016. The decree led to the simplification of the process of establishing new businesses and getting regulatory licenses, assisted in modernization of banking mechanisms and activities.

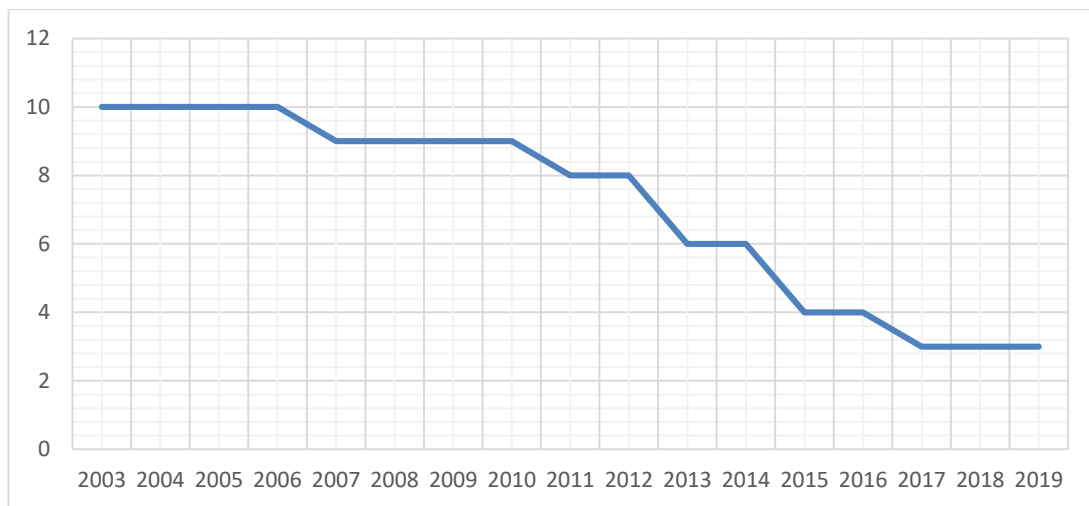
**Figure 2: Number of new businesses registered in Uzbekistan**



**Source: Compiled by author based on the data of (World Development Indicators | DataBank, 2020)**

The next important World Bank Development indicator under discussion is the number of procedures required to possess in order to run a business or launch startup company. The lower the number, the better country is performing in terms of accelerating the process of business creation. As we can observe from figure 3, during the initial years of transition period, it was quite difficult and time-consuming (10 regulatory steps) to establish a new business activity. According to Tsereteli (2018), this was mainly associated with overregulation, administrative barriers, protectionism and the large number of inefficiently managed state enterprises.

<sup>3</sup> PF-4848 dated 05.10.2016 (<https://lex.uz/docs/3039311>)

**Figure 3: Number of initial procedures to register a business in Uzbekistan**

**Source: Compiled by author based on the data of (World Development Indicators | DataBank, 2020)**

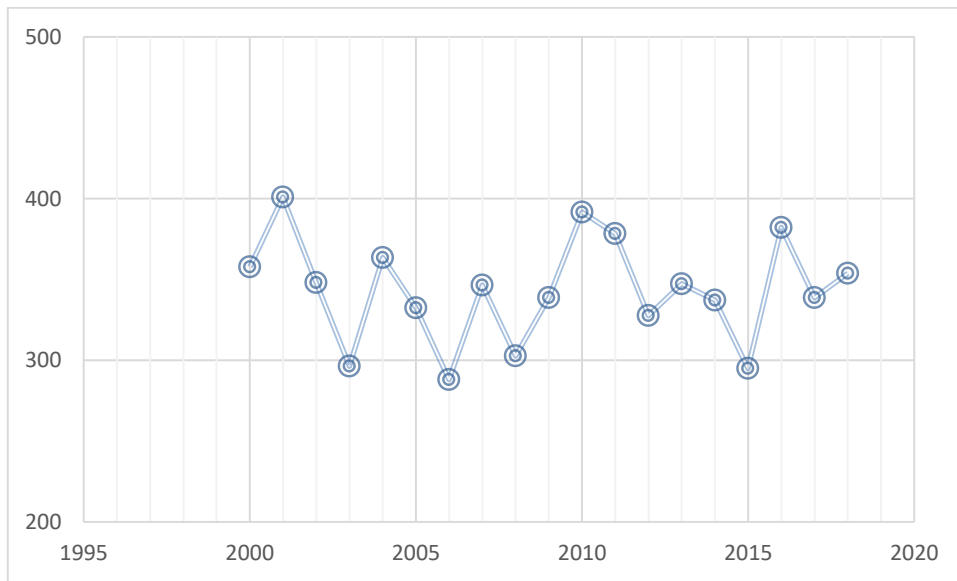
However, there have been enormous reforms (reduced to 3 steps) in recent years in order to support newly established entities and efficiently organize the operation of licensing and regulatory state authorities. For this reason, a special E-Government platform has been established which leads to simplification of licensing and regulatory documents, the streamlining of public services to citizens and firms. This in turn, not only saves time but also reduces the corruption in governmental agencies by eliminating personal interaction and increasing transparency. Tsereteli (2018, p.10) confirms aforementioned statements acknowledging that ‘Uzbekistan is making progress in reforming governance and public services, taking steps that are having an impact on the lives of ordinary citizens and makes it easier for businesses to operate. As a result of those reforms, the country has moved up to 69th place in the World Bank’s “Doing Business” ranking, from 87th in 2015’.

Regarding scientific and technical potential, it can be measured by the number of scientific and technical articles published in popular academic journals. In accordance with figure 4, although there were dramatic fluctuations during transition period, a slight upward trend has been recorded in recent years. This is perhaps due to the systematic reforms ongoing in order to ensure sustainable scientific growth in the country and promote academic career of scientific and technical individuals. For instance, by the initiative of the Ministry of Innovative Development of Uzbekistan, mechanisms of financial subsidies and employment bonuses were introduced, which increased substantially the salary of individuals who possess a PhD or DSc<sup>4</sup> level. Moreover, online academic platforms and scientific databases such as Web of Science, Scopus, Springer Nature and many more have been launched with free access option

<sup>4</sup> Doctor of Philosophy (PhD) and Doctor of Science (DSc) – academic degrees obtained for doctorate and post doctorate studies

available. It is highly expected that all these reforms will bring effective result in the near future.

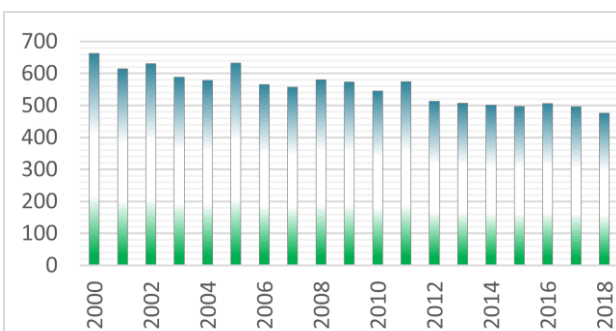
**Figure 4 – Scientific and technical journal articles**



**Source: Compiled by author based on the data of (World Development Indicators | DataBank, 2020)**

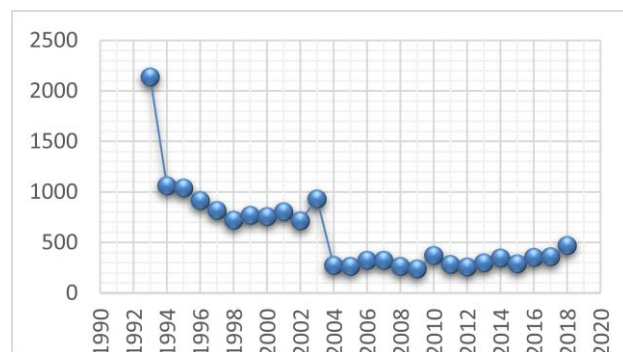
Another important indicator measuring country's research, innovation and technological potential are number of patent applications and researchers in R&D (per million people). It is noticeable from the figure 5 that transition period in these aspects were dramatically severe. Both indicators experienced a downward sloping trend. Number of patent applications dropped drastically from 2136 in 1993 to 257 in 2012. Even though it has been slightly heading up recently, the dynamics of this growth is very slow.

**Figure 5: Number of patent applications**



**Source: Compiled by author based on the data of (World Development Indicators | DataBank, 2020)**

**Figure 6: Researchers in R&D (per million people)**



**Source: Compiled by author based on the data of (World Development Indicators | DataBank, 2020)**



Regarding researchers working in R&D area, it has also been experiencing a decreasing tendency since transformation period. In 2018, the number of researchers per millions of people depicted the lowest value (476) through that period. According to Popov's (2013) views, this diminishing trend might be correlated with an increasing population throughout the whole period. However, in any case Uzbek government should pay more attention to these areas and carry out systematic reforms in order to fill the gaps in both spheres.

#### 4. Innovation potential of Uzbekistan

Emerging economies in the post-soviet area consider economic growth focused on innovation as an essential condition of ensuring sustainable growth in the 21st century. For this reason, governments of developing countries have adopted several state programs navigated to the stimulation of innovation in all sectors of economy. Thereby, the government of Uzbekistan has also chosen innovative development as country's future economic and social wellbeing. In important step was made by the government of Uzbekistan through establishing<sup>5</sup> the **Ministry of Innovative Development** – a uniform state authority which carries out policies in the sphere of innovative, scientific, technological development of the Republic of Uzbekistan.

Figure 7 – The structure of the Ministry of Innovative Development



As we can see from Figure 7, there are 9 main blocks (departments in green) which form the main functions of the ministry:

- Development and implementation of innovative projects in governmental and public spheres with an account of long-term development scenarios of the country,

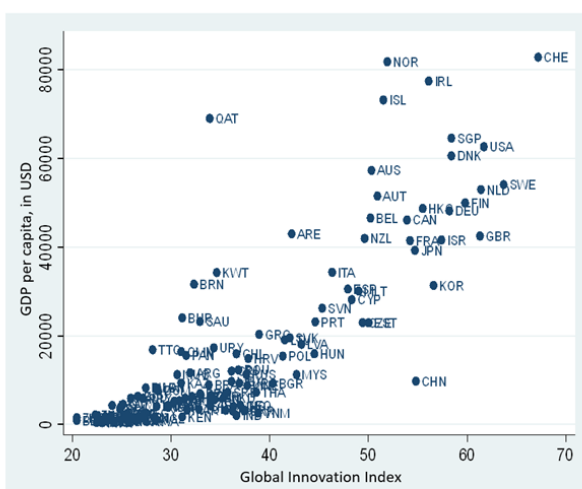
<sup>5</sup> Decree of the President of the Republic of Uzbekistan #5264 on 29.11.2017 (<https://lex.uz/docs/3431993>)

- Strategic planning towards development of rural areas through researching and implementing innovative projects to agricultural sector
- Modernization and intensive growth of healthcare and education;
- Ensuring the cointegration of science, education and industry;
- Developing and realizing innovations in financial sector, through promoting effective banking system, tax policies and investment;
- Researching and implementation of innovations in the real sector of the economy by systematically developing industrial organization, construction, transport, energy and tourism spheres;
- Determination of priority areas of state scientific, technical and innovative development and providing research grants;
- Analyzing potential innovative projects and ensuring their commercialization and transfer of technologies.

After establishing a state body and legal framework, the government of Uzbekistan decided to design a strategy leading to innovative development. Thus, in 2018 by the initiative of the Ministry, **Strategy of Innovative Development**<sup>6</sup> for the period of 2019-2021 was adopted by the President of Uzbekistan. Remarkably, development of human capital was defined as the primary goal of the Strategy and the main factor determining the level of innovative competitiveness of a country on the world stage. Considering the Strategy, Uzbekistan targeted a key mission – entrance of Uzbekistan by 2030 into the ranking of top 50 innovative countries of the world according of the Global Innovation Index (GII).

The Global Innovation Index report contains information about innovation performances of 129 countries. For the assessment, 80 indicators are utilized which give a complete picture of innovative performance of a particular country, including an overview of the political condition, education, the level of infrastructure and business. The Global Innovation Index<sup>7</sup> is a study which investigates country’s innovative climate, that has been handled by the World Intellectual Property Organization, as well as INSEAD business school and Cornell University (USA) since 2007. According to reports World Intellectual Property Organization (2019), GII has a close positive relationship with economic development of countries. As it is observable from the figure 8, the higher position in the GII ranking (meaning innovativeness of a country) is associated with the higher economic well-being (GDP

Figure 8 – The relationship between GII and GDP per capita



Source: Central Asian Bureau for Analytical Reporting, 2020

<sup>6</sup> Presidential Decree №УП-5544 dated in 21.09.2018 (<https://lex.uz/docs/3913186>)

<sup>7</sup> In the 2019 report, Switzerland obtained the first place in the ranking of world leaders in innovation development, followed by Sweden, the United States of America, Netherlands and the United Kingdom. The report also indicates that the leaders in their regions were South Africa, India, Chile, Singapore, Israel, Vietnam, China and Rwanda

per capita). Entrance and making improvements in such indices are pivotal for any developing country, since these independent indicators serve as barometers of particular country's socio-economic development. Moreover, these indicators are often considered by large international investors and agencies, when deciding to invest or implement certain project in a particular developing country.

For this reason, Uzbekistan, similar to many other countries, is actively working to be included into the ranking and eventually improve its positions there. In spite of the fact that Uzbekistan is performing well in such indices as Doing Business, it has fell out of the GII, due to the lack of required country statistics. Last time, Uzbekistan was evaluated in 2015, when it acquired 122nd position in the GII rating, while in 2016-2019 period, due to lack of data, the country was not included in the rating. At the same time, the government of Uzbekistan has set an ambitious mission to not only return into this ranking, but also strengthen its position substantially.

One more important factor in developing innovation is creating an ecosystem for new technology-based start-ups and promoting innovative entrepreneurship. Uzbekistan has already launched some initiatives in establishing this ecosystem.

**Innovation Fund** under the Ministry of Innovative Development was established by the initiative of the President. Basically, the Foundation deals with the funding of research proposals, startup projects, innovative ideas, the equipment of high-tech research laboratories, thus ensuring the breakthrough development of science and technology in the country. For instance, throughout 3 years of its operation, more than 34 startup projects, totaling 31.5 mlrd. Uzbek Sums (around 3,2 million of USD) were funded and its only for startup projects (Ministry of Innovative development of the Republic of Uzbekistan, 2020). There were other costs of ensuring innovative development such as transfer of foreign technologies, free access to electronic scientific databases and journals, financing short term internships for young scientists, international consultancies.

Moreover, in order to further develop startup ecosystem, several **startup contests** are conducted periodically and the most competitive innovative projects are funded by the government grants. For example, commonly known Startup Ideas Competitions organized by the Ministry of Innovative Development, Chamber of Commerce and Industry are popular among young people. Thousands of applications are received in every contest, following this, these applications are thoroughly analyzed evaluating business ideas, its innovativeness, financial characteristics. In demo days, finalists are given chance to pitch or present their projects to investors and government officials, where only selected successful projects will be granted financially for the promotion.

Apart from these, **business incubations and accelerators** are getting its popularity recent years in Uzbekistan. Business incubation and accelerators are designed to support the foundation and growth of a new technology based company. Moreover, they can be privately or publicly owned, and provide physical space, variety of services to startups, assisting them through the earlier stages of their development. There are currently five incubators in Uzbekistan – three of them are private and two

are established by the government. It is remarkable that in addition to government initiatives, academic institutions as well as private sector have also been jointly contributing to establishing an ecosystem that supports innovative entrepreneurship.

**IT Park** is a bright example of privately owned business incubation which creates a modern world-class work environment for the development of innovative products and services in the field of information technology. Besides business incubation, IT park also specializes in acceleration programs, venture funds, mentoring and training programs in its own IT Academy, coworking spaces and IT offices for startup companies.

Another example is **Science Accelerator under the Center of Advanced Technologies**. Science Accelerator is the first accelerator in Uzbekistan and Central Asia for scientific projects and commercialization of scientific developments. For scientists it might be difficult to think about business perspectives of their scientific projects or ideas, for this reason, science accelerator was established in order to support their ideas, provide training, mentorship and consultancies, assist in commercialization of their scientific ideas into valuable startup project. The first season of the accelerator program took place in 2019, and 3 startup projects of the accelerator received investments in the framework of the competition of the Ministry of Innovative Development of Uzbekistan, for a total amount of 200,000 USD.

By analyzing all business incubators and accelerators in Uzbekistan, it was explored that new participant of this program possess the following five important stages until the project reaches end user:

**Conception stage** - startups, which are admitted to business incubators and accelerators, develop their business ideas, form teams, research markets. Mentorship and coaching services are provided by experts of incubators and accelerators.

**Prototype stage** – teams must collaborate on prototyping of the products and services. Creating the prototype and validating innovative products and services is essential stage.

**Marketing stage** – startup teams are expected to complete market research and make final adjustments to the product or service before it is introduced to the market.

**Raising fund stage** – startup teams present their projects in demo days to potential investors, apply for seed funding and startup funded contests.

**Launch stage** – teams launch their projects and enter the market. Remarkably, IT park and Science Accelerator assist startups with their network and large media sets to reach customers.

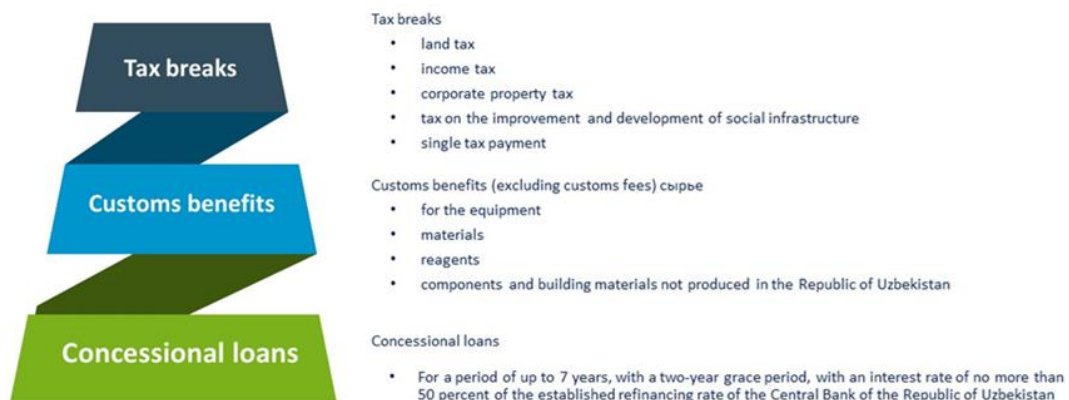
The next essential step towards promoting innovative entrepreneurship was establishing technoparks in several regions of Uzbekistan. According to Maninggar (2019), the technopark is an entity or innovative platform run by specialists whose main goal is to increase the welfare of the local community through the promotion of



innovative culture, as well as the competitiveness of innovative businesses and scientific organizations. Thus, in Uzbekistan technoparks are operated as scientific and technological base for the implementation of innovative projects. Any startup company or running business intending to produce innovative products can apply for the residence status in technoparks. Residents of such organizations are provided with several promotions, namely tax benefits and other compulsory payment exemptions, comfortable offices, favorable bank loans and etc.

The most popular among all technoparks in Uzbekistan is **Yashnabad Technopark**, which was established in 2017 by the initiative of the President. According to figure 9, residents of Yashnabad technology park are provided with tax benefits in the form of exemption from paying a single tax payment for up to 10 years, preferences in the form of the possibility of obtaining loans at 7%, as well as free use of analytical databases. Moreover, one of the pivotal aspects of Yashnabad is the networking opportunity for residents, which have already established a strong cooperation and linkage with research institutions, universities, industry representatives, business centers, exhibition venues, educational organizations and other companies. Primary directions of the technopark are chemical technology, biotechnology, pharmaceuticals, robotics, engineering, construction, alternative energy sources, food industry (Innovative Technopark Yashnabad, 2020).

Figure 9: Benefits to the residents of Yashnabad Technopark



Source: Innovative Technopark Yashnabad, 2020

Noticeably, new resolution of the Cabinet of Ministers of Uzbekistan “on measures to establish **youth technoparks** in the regions of the Republic of Uzbekistan” has been adopted recently. According to the document<sup>8</sup>, the Ministry of Innovative Development, the Youth Union of Uzbekistan and Regional Khokimiats<sup>9</sup> should collaborate in establishing youth technoparks in each region of the country. The main objectives of youth technology parks will be increasing the intellectual, scientific and creative thinking potential of young generation; creating the necessary conditions for talented youth, young entrepreneurs and startups in the regions to engage them in research and innovation activities; providing support in developing their startup or

<sup>8</sup> The Resolution of the Cabinet of Ministers № 313 dated in 22.05.2020 (<https://lex.uz/docs/4823544>)

<sup>9</sup> Regional Administrations



innovative ideas and implementing into reality.

Another remarkable achievement in terms of youth involvement in innovative activeness was the establishment of **Youth Academy** under the Ministry of Innovative Development of Uzbekistan. In contrast to Academy of Sciences, this organization deals with supporting young individuals. Teams consisting of talented youth and bright students, as well as young scientists and entrepreneurs under the age of 40 years, having their own innovative projects and ideas, will be accepted into the Academy on a competitive basis. It is noted that in the framework of the Youth Academy, innovative and startup projects are being implemented on essential areas, namely, artificial intelligence, renewable energy, robotics, mechatronics, pharmaceuticals, biotechnology, computer programming, industrial design, 3D modeling and other promising spheres that are pivotal for the future of Uzbekistan (Youth academy - Yoshlar akademiyasi, 2020).

In fact, main objectives of the Youth Academy include: increasing the creative, intellectual and entrepreneurial potential of young people in cooperation with private and state bodies, research and educational institutions; ensuring youth cooperation with leading scientists and business people of the country and the globe; creating favorable conditions for young scientists to bring a breakthrough solutions for particular socio-economic problems; bringing opportunities for practical implementation of their research proposals, innovative ideas and startup projects.

## **5. Conclusion and policy recommendations**

Uzbekistan similar to many other post-soviet countries underwent period of transformation after collapse of Soviet Union. Noticeably, despite gradual upward trend, this transition period was followed by ups and downs in the economy. Currently, the government of Uzbekistan views an economy driven by innovative entrepreneurship, research and technological developments as one of the high priority directions. Developing innovative ecosystem, promoting human capital and improving Uzbekistan position in the GII are listed as primary objectives in state program “Uzbekistan`s Innovation Strategy”.

Obviously, there are plenty of controversial arguments and diverging views in terms of how Uzbekistan experienced transition period and whether its current innovation system operates properly. Summing up these reviews and analysis, we can claim that Uzbekistan was partially successful in tackling with the issues of transition from centrally planned towards market-oriented economy, thus promoting economic growth, ensuring political stability. At the same time, recent remarkable actions undertaken by the government promotes innovation ecosystem in the country and develops a startup culture in the near future. Therefore, it is worth stating that Uzbekistan is becoming truly innovation hub of Central Asia. However, there are still many challenges which must be considered thoroughly and feasible actions should be taken, in order to be competitive not only in the region but also in the international arena. For this reason, several policy recommendations are provided.

One of the challenges that was revealed due to in-depth interview is the

internet speed. Thus, studies conducted by Kongaut and Bohlin (2017) also revealed that good internet speed not only affects positively on country's GDP but also its innovative performance. Generating innovative ideas, implementing those innovative projects, establishing startup companies, these all are associated with stable internet broadband. Therefore, Uzbek government is recommended to provide better internet connection for future prospects.

It is essential to bridge universities and industry to increase innovative performance of the country. Public research institutions, universities should work in close cooperation with representatives of the private sector in carrying out applied research, which has high probability of being commercialized. Catalyst organizations similar to Science Accelerator are encouraged to assist those research institutes and universities to develop their innovative scientific idea and eventually attract private sector funding for their commercialization.

Technoparks have already shown their effectiveness in real life, so it is advised to implement this idea in higher education system. Operating in universities, technoparks will attract many young individuals, thus creating small startup communities in all universities. Universities at the same time are advised to establish small innovation funds and promote potential innovative projects, startup ideas within this community. Eventually, this will lead to the promotion of innovative entrepreneurship in the country.

Regarding the limitations of the paper, as mentioned earlier there haven't been conducted research describing innovation potential of Uzbekistan, thus, due to lack of statistical data and information there were some boundaries in terms of describing transformation fully. The limited availability of key economic, social data and development indicators makes it difficult for researchers and investors interested in Uzbekistan to investigate the main strengths and opportunities of the economy. Therefore, further research should be conducted in order to fully investigate the topic under discussion.

## 6. Bibliography

CABAR.asia. 2020. Central Asian Bureau For Analytical Reporting. [online] Available at: <<https://cabar.asia/en>> [Accessed 19 May 2020].

1. Kongaut, C. and Bohlin, E., 2017. Impact of broadband speed on economic outputs: An empirical study of OECD countries. *Economics and Business Review*, 3 (17)(2), pp.12-32.
2. Maninggar, N., 2019. Accelerating Economic Development through Technopark: The staging of National Science-Technopark Formation Process in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 328, p.47.
3. Mininnovation.uz. 2020. *Ministry Of Innovative Development Of The Republic Of Uzbekistan*. [online] Available at: <<https://mininnovation.uz/en>> [Accessed 12 May 2020].
4. Popov, V., 2013. Economic Miracle of Post-Soviet Space: Why Uzbekistan Managed to Achieve What No Other Post Soviet State Achieved. Available at SSRN 2303867.

5. Ruziev, K., Ghosh, D. and Dow, S.C., 2007. The Uzbek puzzle revisited: an analysis of economic performance in Uzbekistan since 1991. *Central Asian Survey*, 26(1), pp.7-30.
6. Spechler, M.C., 2000. Hunting for the Central Asian tiger. *Comparative Economic Studies*, 42(3), pp.101-101.
7. Stark, M. and Ahrens, J., 2012. *Economic reform and institutional change in Central Asia: towards a new model of the developmental state?* (No. 2012/05). PFH Forschungspapiere/Research Papers, PFH Private Hochschule Göttingen.
8. Trushin, E. and Carneiro, F.G., 2013. Changing for the Better: The Path to Upper-Middle-Income Status in Uzbekistan. *Economic Premise*, 119.
9. Tsereteli, M., 2018. The Economic Modernization of Uzbekistan. *Uzbekistan's New Face*, 82.
10. Yait.uz. 2020. *Innovative Technopark Yashnabad*. [online] Available at: <<http://www.yait.uz/>> [Accessed 17 May 2020].
11. Yoshlarakademiya.uz. 2020. *Youth Academy - Yoshlar Akademiyasi*. [online] Available at: <<http://yoshlarakademiya.uz/en/youth-academy/>> [Accessed 18 May 2020].
12. Databank.worldbank.org. 2020. World Development Indicators | Databank. [online] Available at: <<https://databank.worldbank.org/source/world-development-indicators/preview/on>> [Accessed 20 May 2020].